

## REMARKS

Claims 6, 7, 29-32 and 36-38 are in the application, with Claims 6, 7 and 29-31 having been amended, with Claims 2-5 and 33-35 having been cancelled, and with Claims 36-38 having been added<sup>1</sup>. Claims 6 and 31 are the independent claims herein. No new matter has been added. Reconsideration and further examination are respectfully requested.

### **Claim Rejections – 35 USC § 103(a)**

Claims 6 and 29 are rejected as being obvious over Lee et al. U.S. Patent No. 6,910,266 (“Lee”) in view of Teshome et al. U.S. Patent No. 6,236,572 (“Teshome”) and further in view of Brandt et al. U.S. Patent No. 6,068,782 (“Brandt”).

It is noted that claim 6 has been rewritten in independent form but is unchanged in scope. Claim 6 remains directed to an “apparatus” that includes “a substrate” and “a pair of signal traces formed directly on the substrate and spaced from each other”. The apparatus of claim 6 further includes “a filler material directly on the substrate and between the signal traces”. In addition, claim 6 specifies that “the filler material ha[s] a dielectric constant that is higher than a dielectric constant of a material of which the substrate is formed”. Further, the apparatus of claim 6 includes “a solder mask layer directly on the signal traces and directly on the filler material” with “the dielectric constant of the filler material being higher than a dielectric constant of the solder mask layer”. Finally, claim 6 specifies that the filler material has a height that is substantially equal to a height of the signal traces.

Applicants respectfully submit that the pending rejection of claim 6 essentially repeats errors that were present in the rejection of that claim contained in the final Office Action dated October 5, 2005.

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<sup>1</sup> It is noted that new claims 36-38 are identical to canceled claims 3-5, but dependent on claim 6 instead of former claim 2.

First of all, the Examiner asserts that the claimed “pair of signal traces” is satisfied by elements 43a and 44a shown in the Lee reference (now substituted by the Examiner for the Williams reference). However, the Lee reference does not support the Examiner’s reliance thereon in this regard. The Lee reference does not indicate that elements 43a and 44a are signal traces. Rather, elements 43a and 44a are stated to be capacitor electrodes, not signal traces. In this respect the Examiner is respectfully referred to column 2, lines 22-35 and particularly to lines 33-35 of the reference. Applicants also note that the Lee reference, like the Williams reference before it, is directed to forming embedded capacitors in a printed circuit board, and has nothing to do with improving the performance of differential signal traces, as in the present application.

This flaw in the rejection of claim 6 is, the applicants believe, sufficient in itself to call for withdrawal of the rejection. However, there are other flaws in the rejection as well, also carried over from the October Office Action.

For example, the Examiner asserts that element 120 in the Brandt reference is a “filler material” even though, as previously pointed out (twice) by applicants, the element 120 in Brandt is a low dielectric constant insulator<sup>2</sup> that cannot possibly be the high dielectric constant filler material referred to in claim 6. Moreover, the Examiner refers to element 190 of Brandt as a “signal line” when in fact element 190 is a via (column 2, line 53).

More fundamentally, the Examiner’s proposal, supposedly based on Brandt, to reduce the height of the capacitor paste 45a in Lee to the height of the copper foils 43a, 44a (mistakenly considered to be signal traces by the Examiner) makes no sense in view of the fact that such a reduction in height of the capacitor paste would bring the electrodes 45a, 43a in contact with each other, thereby destroying the functionality of the capacitor which Lee’s structure was intended to create.

For all of these reasons, it is respectfully submitted that the rejection of claim 6 should be reconsidered and withdrawn.

Claim 31 is the only other independent claim. Claim 31 has now been amended to recite that the filler material has the same height as the signal traces. Thus, the remarks made above in

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<sup>2</sup> Please refer to column 2, lines 19-24 and 39 of the Brandt reference.

regard to claim 6 are also applicable to claim 31, which is submitted as patentable on the same basis as claim 6. The other claims are also submitted as patentable on the same basis.

**CONCLUSION**

Accordingly, Applicants respectfully request allowance of the pending claims. If any issues remain, or if the Examiner has any further suggestions for expediting allowance of the present application, the Examiner is kindly invited to contact the undersigned via telephone at (203) 972-3460.

Respectfully submitted,



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